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10/783,696	02/20/2004	William Chen	AP190HO	1789

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EXAMINER	
RAO, ANAND SHASHIKANT	
ART UNIT	PAPER NUMBER
2621	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/783,696	CHEN, WILLIAM	
	Examiner	Art Unit	
	Andy S. Rao	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 April 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) *10* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9 and 11-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/10/06 and 2/20/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I as read on by claims 1-9 and 11-19 as filed in the reply of 4/2/08 is acknowledged.

Specification

2. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002

do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4 rejected under 35 U.S.C. 102(b) as being anticipated by Ribas-Corbera et al., (hereinafter referred to as "Ribas-Corbera").

Ribas-Corbera disclose a method for adapting the number of encoded bits produced by a codec to a system target bit-rate (Ribas-Corbera: column 2, lines 30-40), comprising: determining if the system target bit-rate is such that bits-per-macroblock is less than a predetermined number (Ribas-Corbera: column 14, lines 50-60), if not, setting the frequency at which intra-coded frames are sent to a first predetermined frequency range, allocating bits between intra-coded frames and inter-coded frames according to a first predetermined factor (Ribas-Corbera: column 13, lines 40-60), and controlling quantizer step sizes for the intra-coded and inter- coded frames, if so, setting the frequency at which intra-coded frames are sent to a second predetermined frequency range that is lower than the first predetermined frequency range, unless there is motion (Ribas-Corbera: column 10, lines 35-45) in more than a predetermined percentage of the macroblocks, in which case the sending frequency of the intra-coded frames is set to the first predetermined frequency range (Ribas-Corbera: column 17, lines 35-65), and setting to zero transform coefficients having a zig-zag index greater than or equal to a preset number in select intra-coded frame transform coefficient blocks (Ribas-Corbera: column 13, lines 25-40), as in claim 1.

Regarding claim 2, Ribas-Corbera discloses wherein the select intra-coded frame transform coefficient blocks include (i) each luminance block with a DC transform coefficient whose value exceeds a predetermined number and (ii) each high-activity block wherein the total absolute quantized level in select transform coefficients is less than a preset fraction of the total absolute quantized level in all of the transform coefficients in that block (Ribas-Corbera: column 6, lines 55-65).

Regarding claim 3, Ribas-Corbera discloses wherein the controlling of the quantizer step sizes comprises setting the quantizer step size for a particular type of frame to the average value used over the last frame of the same type, and adjusting the quantizer step size for the current frame of that type by comparing a partial bit-rate for that frame with a bit-rate range (Ribas-Corbera: column 14, lines 10-30), as in the claim.

Regarding claim 4, Ribas-Corbera further disclose maintaining a count of the actual bits used per frame, and, if the accumulated bit count exceeds a bit budget for a typical inter-coded frame, skipping the encoding of the next inter-coded frame (Ribas-Corbera: column 11, lines 25-45), as in the claim.

5. Claims 5-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Pejhan et al., (hereinafter referred to as "Pejhan").

Pejhan discloses a codec (Pejhan: column 3, lines 20-30), comprising: an encoder (Pejhan: column 3, lines 27-31) that includes a first plurality of variable parameters (Pejhan: column 5, lines 1-6) including x/y search window (Pejhan: column 6, lines 45-67), skip mode protection (Pejhan: column 7, lines 54-63), half/full pel subsample factor (Pejhan: column 4, lines 25-30), transform truncation (Pejhan: column 5, lines 20-25), and motion estimation

(Pejhan: column 5, lines 1-7) for specifying different settings at which a coding algorithm applied to incoming video data can operate (Pejhan: column 3, lines 5-21); and a decoder that includes a second plurality of variable parameters that includes chroma-skipping, and frame-display skipping (Pejhan: column 3, lines 45-60; column 4, lines 7-30) that are used to specify different settings at which a decoding algorithm applied to outgoing video data can operate (Pejhan: figure 1, element 114); wherein the codec is configured such that, during operation, at least one of the coding algorithm and decoding algorithm is able to dynamically change its operating setting according to available computational resources in response to actual complexity measurements performed at run-time (Pejhan: column 3, lines 10-20), as in claim 5.

Regarding claims 6 and 7, Pejhan discloses that the plurality of different settings at which the coding algorithm can operate is 9 and the at which the decoding algorithm can operate is 5 (Pejhan: column 6, lines 15-25), as in the claims.

Pejhan discloses an encoder (Pejhan: column 4, lines 5-25), comprising: an encoder (Pejhan: column 3, lines 27-31) that includes a first plurality of variable parameters (Pejhan: column 5, lines 1-6) including x/y search window (Pejhan: column 6, lines 45-67), skip mode protection (Pejhan: column 7, lines 54-63), half/full pel subsample factor (Pejhan: column 4, lines 25-30), transform truncation (Pejhan: column 5, lines 20-25), and motion estimation (Pejhan: column 5, lines 1-7) for specifying different settings at which a coding algorithm is applied to uncoded video data can operate (Pejhan: column 3, lines 5-21), wherein the encoder is configured such that, during operation, at least one of the coding algorithm and decoding algorithm is able to dynamically change its operating setting according to available

computational resources in response to actual complexity measurements performed at run-time (Pejhan: column 3, lines 10-20), as in claim 5.

Pejhan discloses a decoder (Pejhan: figure 1, element 114)), comprising: a decoder that includes a second plurality of variable parameters that includes a DCT algorithm (Pejhan: column 4, lines 10-15: as executed in the decoder) chroma-skipping, and frame-display skipping (Pejhan: column 3, lines 45-60; column 4, lines 7-30) that are used to specify different settings at which a decoding algorithm applied to coded video data can operate (Pejhan: figure 1, element 114); wherein the decoder is configured such that, during operation, at least one of the decoding algorithm and decoding algorithm is able to dynamically change its operating setting according to available computational resources in response to actual complexity measurements performed at run-time (Pejhan: column 3, lines 10-20), as in claim 9.

6. Claims 11-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Zhang et al., (hereinafter referred to as "Zhang").

Zhang discloses in an arrangement comprising a plurality of clients and at least one server (Zhang: figures 1-2), a device configured to respond to a particular client for which a region-of-interest is identified in a video to be delivered to that client (Zhang: column 6, lines 20-25), the device comprising: a resource-allocation module configured to assign more bits to coding video data in the region-of-interest, and to assign less bits to coding video data outside of the region-of-interest by setting a quantizer step size for the video data outside of the region-of-interest to a value that increases as the distance from the center of the region-of-interest increases (Zhang: column 10, lines 50-65); a scalable complexity module configured to process the region-of-interest video data before processing video data outside of the region-of-interest (Zhang:

column 9, lines 10-25); and a transcoding module configured to transcode the video for that client in accordance with that client's display properties (Zhang: column 13, lines 45-67; column 14, lines 1-37: Quantization Adjustment Module), as in claim 11.

Regarding claim 12, Zhang discloses wherein the device is further configured to reorder a bit-stream representing the video to be delivered to the particular client by placing the region-of-interest data first or by adding forward error correction to the region-of-interest (Zhang: column 14, lines 40-60: different priority VOs), as in the claim.

Regarding claim 13, Zhang discloses wherein the region-of-interest for a particular client comprises one or more regions-of-interest defined by a user of the particular client (Zhang; column 4, lines 15-40), as in the claim.

Regarding claim 14, Zhang discloses wherein the user of the particular client identifies the one or more regions-of-interest by sending a request, along with the properties of the one or more regions-of-interest to the server through a back channel (Zhang; column 6, lines 55-65), as in the claim.

Regarding claim 15, Zhang discloses wherein the device is incorporated in the server and serves the particular client (Zhang: column 6, lines 5-15), as in the claim.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ribas-Corbera et al., (hereinafter referred to as "Ribas-Corbera") in view of Zhang et al., (hereinafter referred to as "Zhang").

Ribas-Corbera disclose a method for adapting the number of encoded bits produced by a codec to a system target bit-rate (Ribas-Corbera: column 2, lines 30-40), comprising: determining if the system target bit-rate is such that bits-per-macroblock is less than a predetermined number (Ribas-Corbera: column 14, lines 50-60), if not, setting the frequency at which intra-coded frames are sent to a first predetermined frequency range, allocating bits between intra-coded frames and inter-coded frames according to a first predetermined factor (Ribas-Corbera: column 13, lines 40-60), and controlling quantizer step sizes for the intra-coded and inter- coded frames, if so, setting the frequency at which intra-coded frames are sent to a second predetermined frequency range that is lower than the first predetermined frequency range, unless there is motion (Ribas-Corbera: column 10, lines 35-45) in more than a predetermined percentage of the macroblocks, in which case the sending frequency of the intra-coded frames is set to the first predetermined frequency range (Ribas-Corbera: column 17, lines 35-65), and setting to zero transform coefficients having a zig-zag index greater than or equal to a preset number in select intra-coded frame transform coefficient blocks (Ribas-Corbera: column 13, lines 25-40), as in claim 16. However, Ribas-Corbera fails to disclose that the method is implemented as a program of instructions embodied on a machine readable medium which when executed causes the device to perform the method, as in the claim. Zhang discloses resource allocation in multi-stream IP network using bit-rate allocation according to a target bit rate (Zhang: column 13, lines 10-40) and further discloses the advantageous implementation of this

method as software (Zhang: column 14, lines 60-65) consisting of a program of instructions as embodied on a machine (i.e. a computer) readable medium (Zhang: column 16, lines 30-60) in order to implement the method across a distributed multi-media network (Zhang: column 1, lines 20-40). Accordingly, given this teaching, it would have been obvious for one of ordinary skill in the art at the time of invention to implement the Ribas-Corbera method as a program of instructions as embodied on a machine readable medium as shown by Zhang, in order to have the method executable across a distributed multi-media network. The Ribas-Corbera method, now implemented as a program of instructions on a computer readable medium as shown by Zhang, has all of the features of claim 16.

Regarding claim 17, the Ribas-Corbera method, now implemented as a program of instructions on a computer readable medium as shown by Zhang, discloses wherein the select intra-coded frame transform coefficient blocks include (i) each luminance block with a DC transform coefficient whose value exceeds a predetermined number and (ii) each high-activity block wherein the total absolute quantized level in select transform coefficients is less than a preset fraction of the total absolute quantized level in all of the transform coefficients in that block (Ribas-Corbera: column 6, lines 55-65), as in the claim.

Regarding claim 18, Ribas-Corbera method, now implemented as a program of instructions on a computer readable medium as shown by Zhang, discloses wherein the controlling of the quantizer step sizes comprises setting the quantizer step size for a particular type of frame to the average value used over the last frame of the same type, and adjusting the quantizer step size for the current frame of that type by comparing a partial bit-rate for that frame with a bit-rate range (Ribas-Corbera: column 14, lines 10-30), as in the claim.

Regarding claim 19, Ribas-Corbera method, now implemented as a program of instructions on a computer readable medium as shown by Zhang, discloses maintaining a count of the actual bits used per frame, and, if the accumulated bit count exceeds a bit budget for a typical inter-coded frame, skipping the encoding of the next inter-coded frame (Ribas-Corbera: column 11, lines 25-45), as in the claim.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Rosenberg discloses a bit rate coder for differential quantization.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy S. Rao whose telephone number is (571)-272-7337. The examiner can normally be reached on Monday-Friday 8 hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571)-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Andy S. Rao
Primary Examiner
Art Unit 2621

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June 29, 2008